E4 School Portrait Eggbuckland Community College Plymouth, England

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http://www.eggbuckland.com/

1 General characteristics of the school

Eggbuckland Community College is a comprehensive school catering for 1500 students aged 11-18 in a suburban area of Plymouth, a large city in the south west of England. The college has a large sixth form of students aged 16-18 who have opted to stay on in full-time education at the college. The college is popular and over-subscribed. It has had Technology College status since 1996.

The headteacher at the college between 1998 and 2003 set out the following vision for the college:

"To develop young people who are able to manage their own learning, their own lives and participate in the political process. To grow leaders with the courage and the intellect to lead some of the most challenging issues the world has faced."

This unusual emphasis on leadership continues to characterise much of what the college seeks to achieve today with its students. The power of ICT – and the Internet in particular – to transform relationships and to free young people's learning became a driving force. A number of key strategies were developed which transformed the culture of the college.

Firstly there was regular articulation of the college's core purpose to put students at the heart of every action and a recognition that the college had to develop young people who would need to manage the global ethical challenges and lead the next stage of the technological revolution.

A new ICT network manager began work on the infrastructure and this brought about major changes. Students were told that the college would develop classrooms for the future and an interactive whiteboard was soon acquired and placed it in a newly refurbished room with a teacher who would make good use of it. In return the teacher had to promise to stimulate a debate about teaching and learning as widely as possible. At this stage there was much scepticism and concern amongst other staff, but some began to use the college's intranet for sharing ideas across the college and to develop the college website. Excitement grew amongst staff and students as the college wrestled with the notion of changing relationships.

In 2000, the then headteacher attended a Microsoft conference in Seattle on the Anywhere, Anytime Learning project, visiting schools, hearing about the e-Learning Foundation and visiting the Microsoft home of the future. The headteacher returned convinced that the college needed to understand and work with the "Internet generation". Students had to be at the heart of what the college did and, if staff did not understand the context of the technological revolution, then they would render themselves increasingly irrelevant. She appointed a business manager and a great deal of energy and money was put into refurbishing the college as a major priority. She wanted to ensure that students felt they were important and that staff knew that their learning environment mattered. They began, through the ICT network manager, to make inroads into the infrastructure.

The appointment of a vice principal for e-college development was made in order to lead the development into laptops; he remains in post. This title was highly significant and carefully chosen. It was important because it made a very clear statement to the whole college community about the direction it was taking. The vice principal's first task was to get all of the computer rooms open, preferably with students in charge and this led to the Access Manager scheme.

The college now enjoys the services of three full-time ICT technicians, all of whom are line managed by the vice principal. There is a student: computer ratio of 3.5:1 and many of the machines available to students are laptops. Most staff have a college laptop and some of these are used in projects when necessary. In some groups the students have their own laptop on a lease scheme and some of the funding for this has been enabled through sponsorship from parents to support the Eggbuckland e-Learning Foundation.

2 Changes for students

The e-learning initiative at this college has mainly affected five classes, each of about 25 students, and for them, the impact on learning has been significant. The classes involved have had personal laptops available to them individually in their lessons and at home since the beginning of their second year at the college – when they were in Year 8. One of the classes is now in Year 10 and two classes are in each of years 9 and 8.

As well as being given laptops for doing their work, for accessing electronic databases and communicating by e-mail with fellow students and teachers, students in these classes have experienced methods of teaching in several subjects, notably science and mathematics, that are different from those experienced by most other classes. Teachers who teach these laptop classes meet regularly to ensure that teaching styles reflect the new opportunities that can be offered to the students. They therefore engage in their learning by studying independently under the direction of teachers. This involves them in:

- researching topics individually and in groups;
- teaching one another topics which they have struggled to master and freely questioning one another about these;
- knowing one another well and sometimes dividing up tasks in order to achieve more in a given time;
- readily sharing the fruits of their researches or other ideas.

Unlike many other classes, these students are taught most of their lessons in rooms which have wireless communications with the college network; teachers often teach them in their class base, rather than the students going to subject rooms.

A Year 9 laptop group worked in a mathematics lesson on the concept of correlation and best fit, first of all using their laptops to complete a scattergraph for sets of mathematics and art test scores. After a class discussion about positive and negative correlation, the teacher then used the Autograph software to demonstrate on the interactive whiteboard how the correlation line could be varied to give the line of best fit. Students first of all used their laptops to do this by eye. The teacher introduced important terms and concepts such as "residual" with a powerfully visible means of demonstrating what these meant. The students then undertook exercises using various sets of data in Excel, importing these into Autograph and using Word to write commentaries on the resulting graphs and the correlations between the data. The laptops meant that all of students were able to reinforce the learning immediately and use the power of the software to consolidate their understanding.

Although students in the laptop classes have taken such change in their stride, they are aware of being a very special group in the college. They know how palpable their progress has been in terms of mastering the technologies and benefiting from independent learning, from carefully designed learning resources and from one another's strengths. The sense of community in these laptop classes is good, and they generally appreciate the responsibility that rests upon them to play their part in their classes and make good use of the facilities and expertise they are able to call on. When these students join those from other classes to study art, music and design and technology, their greater technical expertise with ICT is drawn on by teachers and other students.

The college also makes use of students from these laptop classes in projects designed to support learning outside college, for instance in some of Plymouth's primary schools. Some students have presented aspects of science to pupils in primary schools, and subsequently marked follow-up work that had been e-mailed to them by the primary pupils. The students were prepared for this in advance by staff and the experience taught them a great deal about the need for planning, preparation, regard for an audience and sensitivity in marking. Other students from the laptop classes provided support for courses designed for primary school teachers and pupils on the use of newer technologies and software.

The impact of ICT on learning for the other students in the college depends on the expectations and attitudes of individual teachers. Where a teacher expects students to research, model, experiment, create and improve their work in stages, students respond well, recognising that ICT is a versatile tool and readily employing it.
The ready availability of computers in many areas of the college, including the library, means that students have no trouble finding machines which are free and other users who can help with any problems. The quality of use of the available facilities is best where students are aware of how to use the intranet filing system and how to manage their directory space. At the time of the visit a facility for enabling all students and parents to access work folders from home was in an advanced stage of implementation. All students could, however, use e-mail to send homework and other coursework to their teachers for marking. Many older students appreciated the advantages offered by e-mail to revise work in electronic form, and to send it to their teachers – sometimes just in time to meet a deadline!

An outstanding feature of the college that has arisen from its approach to widening the availability of ICT throughout the college is the system of supervision used in the computer rooms and their environment. The five computer rooms are always open during break times and are managed by students appointed as "Access Managers". These may be drawn from years 8 to 11 and are treated by teaching staff and students just like adult ancillary staff. Their presence and authority makes possible the orderly, safe and secure use of PCs in the computer rooms without the presence of adults. They have devised their own hierarchy of operational grades and an impressive and highly transparent system for promoting their members on merit to higher grades as necessary.

The scheme, like the primary teaching, is part of the college's broader student leadership agenda. The duties of this group are managed and reviewed by their own elected executive group, and they are clearly recognised, individually and collectively, as a force to be reckoned with around the college. Access Managers have, and use, authority to deal robustly with any infringement of rules in the areas they supervise, including the right to exclude older students from certain rooms or to ration times at workstations, if necessary. Teachers have had to learn to treat Access Managers as adult ancillary staff. They had to back their authority in front of other students and, if necessary, to discuss with them in private how to handle difficult situations.

Two or three years into the scheme, the group of 50 or so Access Managers now undertake their own members' training and induction, manage their own affairs and appointments or promotions and feel that they are real stakeholders in the college. They expect to be consulted. They expect to be listened to not only by the students they supervise in computer rooms but by the senior management. They care deeply about the ICT facilities or proposed changes in the use of ICT spaces. The executive committee invites the vice principle to join its meetings when necessary, for example when policy decisions are needed or management's support in resolving differences with teaching or ancillary staff is required.

A similar scheme for the extension of resources for the laptop classes was run by a group of Year 10 students. They were given full responsibility to identify issues, research and discuss solutions with the college technicians, identify value for money, order and deploy new resources. They were working to provide more printers around the college, extend the wireless network and provide lockers. The group had a significant budget to work with and were careful to ensure that they gained good value for money. They were proud to have saved the college money through their careful research of best buys.

A refreshing feature of the curriculum in ICT is that students joining the college from the six main primary feeder schools encounter fresh applications of ICT through the "Creative Arts" programme. The components of this course involve activities in art and design and in music where the use of ICT is embedded so as to address specific elements of the National Curriculum in ICT. This takes the place of a specifically timetabled course in ICT and means that art and music have extra time to introduce technology applications in their subject. Other elements of the ICT programmes of study are introduced in mathematics and in design and technology. This approach to ICT as a subject in Years 7 to 9 is still very new, and its consistency and quality is being assessed by the new head of ICT, who is responsible for assessing students' achievements in ICT.

Overall, students are introduced to a great variety of applications and software, including Excel, Access, Paintshop Pro, the Qbase and eJay music composition software, digital video (DV) cameras and associated image and film editing software, and Crocodile Clips for modelling electronic circuits. Although work with DV is not yet fully developed to produce high-quality outcomes, the medium promises to be a fruitful vehicle for expressive productions and a means for teachers and students to record activities that students can then concentrate on improving. There are plans to introduce data-logging in the lower school and more advanced modelling and design software, and 3-dimensional computer aided manufacturing.

In practice, the applications that are used most commonly are Word and PowerPoint, often allied to Internet searches. Students also use spreadsheet and graphing software. Even where students are not using applications in the most efficient manner they are virtually never hampered in lessons by a lack of the necessary skills to handle unfamiliar facilities or options in a software programme. This encourages teachers in several subjects to be more ambitious in the ICT-based tasks they expect students to handle in class or in private study time.

3 Changes for Teachers

Eggbuckland is a school where staff are actively and enthusiastically exploring the potential and challenges involved in developing their use of ICT to support teaching and learning as well as developing students' ICT capability. This is visible through the development of the ICT skills programme, the laptops scheme, peer teaching and range of external projects in which staff are involved.

The imaginative year 7 ICT programme delivered through art and music has presented both opportunities and challenges to the teachers who deliver this programme. As one teacher commented:

"Only by doing can you find out what a resources is good for and what you could reasonably hope to achieve with it."

Many staff involved in this course have taught themselves to use a range of software and explore how it can be used to develop students' skills, as well as enhancing the teaching in art and music. Staff are now actively exploring the use of DV and finding ways to integrate its use within their art teaching. In both of these subjects extra time has been provided to the subject to ensure there is time to teach new skills through the subject itself.

In music, Year 7 students develop further the presentation skills that many have acquired through the use of PowerPoint in their primary schools. These are developed through a multimedia based project. Staff teaching this programme have produced a creative range of activities which enable students to explore animation, different types of images and sounds. The skills teaching is carefully undertaken in a context which interests the students and adds to their learning of the subject itself.

In Year 7 art lessons, students are introduced to the use of scanners and photo-imaging software and a range of different media forms including textiles, natural objects, pictures and photographs to create a collage which reflects an aspect of their topic. Students develop a range of skills to use the photo-imaging software and to manipulate their images, create patterns, change colours and evaluate their work. Staff have worked hard to gain the skills required to use the technology for themselves and are actively exploring the potential that the technology offers.

The introduction of the laptop classes has also enable teachers to explore how access to a laptop by all students in the class can be effectively harnessed. A key to the success of this project has been the willingness of staff to try out new ideas, approaches and techniques in their teaching as well as the peer support gained through the weekly meetings for everyone teaching one of the laptop groups.

In a science lesson, students in a Year 9 laptop group had created PowerPoint presentations that demonstrated the effect of different forces on movement. These were emailed to the teacher as homework. Students had used the skills learnt in earlier years to create animated presentations to demonstrate their understanding of the concepts. The teacher skilfully used several of the presentations at the start of the lesson to highlight what individual students had done well, but also to use them as learning points for the rest of the class where the presentation was inaccurate or could be improved. The students accepted the teacher's careful handling of the peer evaluations and made learning gains from the experience.

The use of ICT by laptop classes has also challenged teachers' conventional approaches to teaching and learning. The development of peer tutoring, where students work in groups to plan research, and then teach specific parts of the curriculum has helped both students and teachers to understand the teaching and learning process. One teacher encouraged his students to evaluate, improve and return his own lesson presentations as homework.

A similar attitude can be seen in teachers' willingness to embrace the potential of the interactive whiteboards, and display technologies that are increasingly available around the college. These are often used effectively to stimulate students at the start of lessons, or as a teaching resource for new concepts and ideas. Staff who have been involved longest in their use are now evaluating their earlier resources and identifying the progress they have made in their ability to create new teaching resources.

Teachers are also encouraged to share their experiences with other colleagues. A regular pattern of review has been established at the start of department meetings where teachers are encouraged to share both their successes and failures, identify new Internet-based resources and discuss their planning. These sessions are valuable for experienced staff, but are also helping to short-circuit the learning experiences of staff new to the college or to the use of ICT in their teaching.

A key factor in the development of all staff has been the introduction of the college's assessment software which has been written especially to meet the specific needs of the college but also with an explicit aim of making it simple and therefore accessible to all staff. This has now been achieved with all staff actively recording student assessments, setting and checking progress towards the student targets which are a key part of the software. This has given an added impetus to more careful analysis of department data, student progress and specific attainment differences between departments.

Opportunities for further professional development have been provided through a wide range of ICT based projects with other schools in the Plymouth area, some of whom are feeder schools to Eggbuckland. These have given planned release time for teachers to visit and work in other schools where they have been able to further

develop their skills as well as their understanding of ICT within the primary phase. This is evident in the way that the Year 7 skills lessons in music build from where students are when they arrive at the college.

4 *Organisational change*

The vice principal responsible for e-learning has been the driving force behind the recent developments and the support his ideas received from his colleagues on senior management team made it possible to implement the college's vision. The vice principal manages the curriculum and line manages the heads of subject departments as well as the ICT systems manager and the librarian. His important strategic position in management, his own ICT competence and the availability of funds to support change have greatly enhanced the chances of success for this e-learning initiative.

The application of ICT and related e-learning could not have been realised without sustained support from key senior staff who lead, and/or are respected within, subject departments. Not all teachers are yet convinced of the merits of using ICT extensively to support teaching and learning. Indeed, some teachers still consider the changes involved in frequent use of ICT threatening to their existing, and often proven, professional practices, or to students' success in public examinations. The senior management wisely sought to win hearts and minds through a system of funded ICT-related projects and facilities, to which departments, or individual teachers who were so minded, could sign up without threatening colleagues who were less ready for such change.

The organisation's approach to the management of change was thus to offer flexibility within a supportive ethos in which staff could choose to join or avoid specified projects, such as promoting one's own, and departmental colleagues' successful use of an interactive whiteboard in teaching, or joining the team of teachers working with students in providing ICT training for staff and pupils of a primary school. Those who engaged with such initiatives did not always find the journey a comfortable one: being part of the project to teach a laptop class in Year 8 could entail changes to teaching styles and methods of student assessment; it could also necessitate research and often the preparation of new teaching materials. As a number of teachers indicated, however, a comforting thought was that the college and the students tolerated mistakes, and everybody was learning by doing. This encouraged teacher participation and involvement as the process was seen as valuable professional development.

The senior management team gave every encouragement to staff prepared to participate in such e-learning and ICT projects. Being associated with an approved project enabled a teacher or a department to:

- receive equipment, such as a laptop computer or an interactive whiteboard;
- have timetabled opportunities for meeting others involved in the project;
- receive funds for materials or equipment.

For some curriculum leaders, the opportunity to have tested teaching materials placed on the intranet to support less-specialist staff in teaching a topic was reward in itself. Planning and delivering the work of the laptop classes was certainly a most significant and demanding project and involved many teachers and complex organisation. Some of the implications of this were:

- significant timetabled planning time had to be provided for a large cohort of teachers;
- additional time for sharing good practice was needed by teachers who were new to teaching a laptop class;
- consistent approaches and expectations had to be adopted in teaching these classes.

A very informative handbook was provided containing examples from science on how e-learning might be approached in a laptop class. Apart from making these arrangements for planning and methodology, the college had to set aside accommodation with appropriate wireless access points to house some 25 simultaneous users in each laptop class. There were also significant difficulties in timetabling the work of the laptop classes. This was because the classes were generally of mixed ability, and because each was to be taught together as a tutor group for most subjects in Years 8 and 9. This imposed constraints but did not affect the timetables or curricula of other classes in these years. Finally, care had to be taken in selecting the students in Year 8 for the two laptop classes, that the inability of parents to afford the monthly cost of leasing a laptop computer would not prevent the student from joining a laptop class if the parents wanted him or her to do so.

A significant change for the organisation in approaching e-learning has been the recording of student assessments on a database that is accessible to all teachers on the college fileserver. The database system was originally designed and implemented by the vice principle for e-learning for his own use, and is recognised by teachers and administrators as very easy to use. Most teachers have now input student assessment data for effort and achievement as well as for key skills. Departments have started to compare the achievement and effort grades for their subject with other subjects. Heads of year have compared grades awarded to individual students, and whole classes, for work in various subjects and in key skills.

The subject grades show the extent to which students are on course to achieve, exceed or miss their personal target, calculated for them from earlier grades they had obtained at the beginning of a Key Stage. This clearly offers a means for detecting underperformance and for reviewing appropriateness of provision for individuals as well as groups of students. In the context of independent learning, this tool allows the monitoring of students' achievements and attitudes as well as the achievement of corporate objectives. Use of this online system for these purposes is emerging.

The robustness of the ICT system on which both administrative and curricular data and are held is clearly crucial. The appointment of a systems manager led to the adoption of a more rigorous way of reporting faults and dealing with their correction or repair.

5 Changes in co-operation with others

The most significant collaboration with other schools that the college has undertaken has been the Primary Laptop Project. One local primary headteacher described it as "the most effective and ground breaking project I have ever been involved with". The project changed the direction in which many of the primary schools were heading and provided them with a model for how laptop learning could be established in their schools.

The college funded one Year 6 teacher from each primary school for a day's training in the use of PowerPoint, data projector and mobile interactive whiteboard. The vice principal and support technician took 30 laptops into the schools for a day, together with an interactive whiteboard and projector, a scanner, digital camera and printer. The pupils, and later their parents, were taught how to use PowerPoint and the resources were left with the pupils who worked in school and at home, making presentations to their classmates at the end of the week. The pupils decided on winners and at the end of the year all of the winning students presented at an awards evening at the college and overall winners in a number of categories were awarded prizes.

Pupils from primary schools also come into the college to be taught science, mathematics, technology (using the CADCAM facilities) and ICT through the laptop project. This serves an additional purpose of preparing the pupils for Key Stage 3 when they transfer to the college.

The college offers training to all schools in Plymouth that the LEA has identified as requiring additional ICT support. This has included specific training in the use of interactive whiteboards and guidance in the expansion of ICT.

The Access Manager programme has been subject to considerable interest from the international community following the presentation of a paper to an international conference. This has resulted in similar schemes being introduced elsewhere.

The college has worked with the Wellcome Trust and Oxford Trust on drama in science education in a project called Science Centre Stage. Both the college's science and drama and theatre departments have been involved.

6 Reflection and ambitions

The college has made great strides in the past few years. Developments in ICT and e-learning have been rooted in an approach to education that puts the student at the centre of the educative process and where their involvement in leadership is seen as a central objective. The effects of this are highly visible in the college, not only in the Access Manager scheme, but also in the encouragement to all students to become presenters and even teachers. This makes for effective learning and has also resulted

in some of the students in the college developing a very mature approach to their own learning and developing a strong sense of citizenship through service to other students, both in the college and in neighbouring primary schools.

The previous headteacher has now left the college and the new headteacher is keen to take stock of ICT developments and ensure that the distinctive approach continues. She continues to be well supported the vice principal for e-learning who is much in demand from schools not only in England but also around the world in order to share the college's unique experiences. Ambitions are for continued emphasis on the core values of the college and an expansion of ICT so that the benefits that have been seen in the laptop classes become rooted in the learning of all of the students.

7 Appreciation

The distinctive progress made at Eggbuckland is connected with the clearly articulated philosophy of learning. ICT has been used to serve this deeper purpose. The vision for the college notably includes reference to young people managing their own learning and their own lives. The role of ICT in this has been well understood by many staff who have developed good practices, for example in the use of interactive whiteboards and who have recognised the interests and enthusiasms of this generation of students. Notions of student leadership are also well rooted in the college's approach.
The importance of students developing the skills of presentation and teaching, collaboration in groups, teamwork, communications and understanding how they learn and adapt effectively is also implicit in the college's approach to the use of ICT. This has provided some students with opportunities to develop skills and understanding that are unusual in students of this age. It has been a significant building block in meeting the college's vision of helping them develop "the courage and the intellect to lead some of the most challenging issues the world has faced".

8 Lesson for others

Important factors in the college's journey towards its current position include the team of technicians being part of the college's strategic planning for ICT developments and the use of the e-Learning Foundation to help raise funding for additional resources. Investment of time and resources in working with partner primary schools has also ensured that pupils are familiar with the college's approach before they arrive and anticipate an ICT-rich curriculum with some excitement.

The drive from senior management has been the single most influential factor in the college's recent developments. The culture of professional support and challenge has meant that staff can try out new ideas in a supportive climate and share ideas and issues as well as reflect on successes and failures with like minded professionals. Each major project has an attached staff group and all staff are invited to join these

influential bodies who meet regularly to share practice. This is complemented by support from within departments. Each department is required to spend at least 50% of their meeting time on curricular issues, for example through the sharing of ideas for the use of the interactive whiteboards in a subject context. There has also been some fruitful sharing of such ideas between departments and planned subject developments are shared in meetings for heads of department and year and at full staff meetings.

The senior management team are involved not only in setting out the vision and broad direction but in overseeing the detailed implementation of plans. This is further strengthened by plans to make the ICT co-ordinator post part of the senior management team. In order to manage change, the leaders have the confidence and skills which have evolved from being part of an ongoing creative process of analysis and reflection on the purpose of education, the fitness of the college to adapt to ever-changing contexts. In other words, developments have gathered their own momentum, but the leap of faith that started them came from a clear vision and a commitment to success.